

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, March 11, 2026 at “WeAchieve”, 10501 New Hampshire Ave.

Science Report Highlights

Betsy and Dan thought all the items in following science report from Charles were interesting but most liked the following:

- Norovirus Vaccine Progress
- Orthopedic Implant Surgery Advances (Knees/Hips)
- Non-Small Cell Lung Cancer (NSCLC) - FDA has granted accelerated approval for Hernexeos
- Hypertension (High Blood Pressure) stats
- Biological Roots Of Psychiatric Disorders
- Food Preservatives Are Associated With Cancer And Type 2 Diabetes
- Antibiotic/Disinfectant Resistant Bacteria are strengthened by the presence of nanoplastic particles
- Sleeping In The Dark Reduces Heart Failure Risk
- Life On Jupiter's Moon Europa?

Science Report

Self-Protective Measures -

You should get vaccination advice from your doctor or your pharmacist ... not from this Report or the internet. Everyone should consider maintaining current vaccinations for the three respiratory viruses: Covid, flu and RSV (for RSV, adults [over 60](#) and children <8 months), unless your doctor/pediatrician advises against. Adults over 50 should have had the [Shingrix vaccine for shingles](#) (two doses 2 to 6 months apart, good indefinitely), and also the [Pneumococcal Vaccine](#). Many states are making access to these vaccines less complex - [map](#).

Viva White Oak - A new, planned community will be rising in Montgomery County Maryland near the FDA campus. Progress [here](#). Video and a map, [here](#).

Vaccine and Therapeutic News -

- Norovirus Vaccine Progress - There is no FDA-approved vaccine (ongoing clinical trials). Norovirus ('cruiseship virus') infects 21 million people in the US annually, including 15% of children under age 5. Wash your hands frequently on a cruise ship. "A journey of a thousand miles starts beneath one's feet." Lao Tzu, 500 BCE.
 - For Infants Via Breastfeeding Women - In January, [Vaxart](#) (South San Francisco CA) announced encouraging results from the [Phase 1 study](#) of its single-dose,

oral bivalent norovirus vaccine candidate for post-partum, breastfeeding women. The company's test showed biomarkers indicating functional antibodies in infants breastfed by vaccinated women. [Publication](#). This trial data updates information from a [2024 study](#).

- For Adults - [Moderna](#) (Cambridge MA) is conducting a Phase 3 [clinical trial](#) for its adult norovirus vaccine candidate [mRNA-1403](#), completion expected in 2027 ... for prevention of norovirus generated acute gastroenteritis. [John McK.]
- Orthopedic Implant Surgery Advances (Knees/Hips) -
 - Knee And Hip Replacement Robotics - See the [Stryker](#) (Portage MI) Mako 4 system designed to assist orthopaedic implant surgical procedures, [here](#) .. multiple FDA 510(k) [clearances](#).
 - Fractured Femur Repair - To allow time for the segments of a fractured femur to reattach/strengthen, they are fixed in place surgically. See two informative [surgical animations show how it's done](#) using a [Stryker](#) T2 Alpha Femur Retrograde Intramedullary Nailing System. Elegant bioengineering!
- Non-Small Cell Lung Cancer (NSCLC) - FDA has granted accelerated [approval](#) for Hernexeos (zongertinib), a treatment for this condition from [Boehringer Ingelheim Pharmaceuticals](#) (Ingelheim am Rhein Germany). 76% of previously untreated patients achieved substantially decreased tumor size during the clinical trial. Lung cancer was the top cancer killer in the US in 2025 - 226,650 new diagnoses, 124,730 deaths. Thanks Germany!
- New World Screwworm (Cochliomyia hominivorax) In Dogs And Cats - FDA has [granted](#) Emergency Use Authorization ([EUA](#)) for the use of [NexGard \(afoxolaner\) Chewables for dogs and puppies](#) with this condition, and approval for the use of [NexGard COMBO \(esafoxolaner, eprinomectin, and praziquantel topical solution\)](#) for this condition in cats and kittens. [Boehringer Ingelheim Pharmaceuticals](#).
- Glioblastoma Multiforme - [Novocure](#) (Root Switzerland) has [announced](#) FDA approval for an upgraded version of the wearable 100-500 kHz RF field transducer array used with the company's previously approved Optune Gio medical device for this condition. Clinical trials are in progress to extend the use of the Optune Gio concept to other types of cancer. Update: the company has [announced](#) FDA [approval](#) of the company's wearable Optune Pax for the treatment of locally advanced **pancreatic cancer**. See how RF fields target the unique electrical properties of cancer cells, [here](#). These devices *extend* life, but are not a cure.
- Male Birth Control Pill - non-hormonal, reversible, no testosterone changes, well-tolerated. [YourChoice Therapeutics](#) (San Francisco CA) has [released](#) encouraging *preliminary* results for its orally administered medication YCT-529, and a Phase 2a human study is currently in progress. [Details](#) and a [publication](#). Nearly half of all US pregnancies are unintended. Could be revolutionary, in unexpected ways. According to the Cleveland Clinic, [condoms are 87% effective](#) at preventing pregnancy.
- Detecting/Tracking Atrial Fibrillation (AF) And Hypertension With Apple Watch - [Apple](#) (Cupertino CA). Recently [published](#) human trial results indicate that information from the [Apple Watch](#) enhances the detection rate of new onset AF compared with standard

care in patients at elevated stroke risk. [Details](#). [FDA approval](#). Hypertension related [documents](#). AFib related [documents](#).

- [Hypertension \(High Blood Pressure\)](#) - According to CDC's National Health and Nutrition Examination Survey (NHANES), 47% of Americans have hypertension, and 79% of those have uncontrolled blood pressure with or without medication (61% *not* on medication). That's a lot of avoidable risk.
- [Kidney Disease Increases Heart Failure Risk](#) - and now we know why. Researchers at the University of Virginia, partnering with the Icahn School of Medicine at Mount Sinai in New York, [found](#) that diseased kidneys release large numbers of circulating extracellular vesicles, microscopic particles that act as messengers between organs. Such signals are normally helpful, but in people with chronic kidney disease, the vesicles carry toxic microRNA (miRNA). [Details](#). This presents the possibility that blood tests could give early warning of heart failure risk in kidney patients.
- [Good News About Statins](#) - A recently [published](#) study found that of the 66 *potential* side effects attributed to statins, only 4 were confirmed. [Details](#). According to the Cleveland Clinic, 39 million Americans take statins, most over 40.
- [New US Manufacturing Facilities For The Active Ingredients In Neuroscience And Obesity Medications](#) - are [planned](#) by [AbbVie](#) (North Chicago IL). The company will invest \$380 million to build two US pharmaceutical ingredient manufacturing facilities at its Illinois HQ campus near Chicago. The new state-of-the-art facilities will integrate advanced manufacturing technology with artificial intelligence (AI) - construction soon, full operations in 2029.

Other Health Science News -

- [Biological Roots Of Psychiatric Disorders](#) - Researchers at the University of Colorado Boulder and Mass General Brigham, in collaboration with the international [Psychiatric Genomics Consortium](#) Cross-Disorder Working Group, have published a study pointing to common biological antecedents (DNA data) for each of 5 groups of 14 psychiatric disorders - Figure 1 of their publication, [here](#). Example of clinical implications - [70% of the genetic information associated with schizophrenia is also associated with bipolar disorder](#). Psychologists usually view bipolar disorder and schizophrenia as very different, and clinicians typically don't diagnose an individual with both. [Bernie A.]
- [Air Pollution And Health](#) - The World Health Organization (WHO) estimates that there were 4.2 million premature deaths from outdoor air pollution globally in 2019, 68% from heart disease/stroke. Potential causes ...[publication](#).
- [Leaded Gasoline](#) - went out in the early 70's, by order of the newly established Environmental Health Agency (EPA), because it was an obvious, carcinogenic toxin. A recently [published](#) study of a [century of archived hair samples](#) (hair accumulates lead) from researchers at the University of Utah showed a sharp drop in lead content beginning at about the same time. **Regulation works! Air pollution impacts health!**
- [Food Preservatives Are Associated With Cancer And Type 2 Diabetes](#) - according to two recently published studies: [publication 1](#) and [publication 2](#). Details, and a [video](#) here. Best to [avoid processed foods containing preservatives](#).
- [Antibiotic/Disinfectant Resistant Bacteria](#) - Researchers at Virginia Tech (Virginia Polytechnic Institute) have recently [published](#) a study showing that [bacteria are](#)

[strengthened by the presence of nanoplastic particles](#), which promote the creation of antibiotic-shielding biofilms. Water utilities in the DMV do a good job of filtering nanoplastics, and installing a filter for drinking/cooking water (and ice maker water) at the point of use can make a further improvement. Using **drinking water stored in plastic bottles goes in the wrong direction**, regardless of artful claims. [Details](#).

Plastics containing [phthalates](#) (constituent of some plastics) magnify the toxic effect through a different mechanism.

- [Sleeping In The Dark Reduces Heart Failure Risk](#) - by up to 50%, according to a recently [published](#) study. [Details](#).
- [Half Life Of Caffeine](#) - Peak stimulation is reached in the first 30-60 minutes, with about [half of the caffeine remaining after 5 hours](#). The [American Academy of Sleep Medicine](#) now [recommends](#) no caffeine within 6 hours of bedtime.
- [Colorectal Cancer](#) - has become the [leading cause](#) of adult <50 cancer-related deaths in the US, and is often not detected until it's at an advanced stage, [publication](#). [Screening should start at age 45](#), and can be done from test samples collected at home. See a list of early warning signs from the Mayo Clinic, [here](#).
- [Screening Test For Early Stage Pancreatic Cancer?](#) - Researchers at the University of Pennsylvania have made a key discovery that moves us closer to the goal, with more work to be done. [Details](#). [Publication](#)
- [Cleaning Eyeglass Lenses](#) - without scratching the lens or damaging their coating, [video](#). [turn on sound]
- [Maintaining Bone Mineral Density](#) - See the 5 simple, at-home exercises recommended by the American Association of Retired Persons (AARP), [here](#). See also advice from the Mayo Clinic on things you can do yourself, [here](#). Those with a Body Mass Index (BMI) of 19 or less are at greater risk of bone injury. [Pauline J.]
- [Nanoplastics In Drinking Water](#) - Ohio State University researchers used both scanning electron microscopy and optical photothermal infrared spectroscopy to examine 6 brands of plastic-bottled water widely sold in the US, and tap water from four drinking water treatment plants near Lake Erie. They found that plastic-bottled water contained about three times more nanoplastic particles than treated tap water - [details](#) and a January 2026 [publication](#).
- [South Carolina Measles Outbreak](#) - [Update](#) 3/3/26 - 990 cases centered on Spartanburg County. [Fran McC.]

Practical Nutrition -

- [Whole Wheat Pasta](#) - has more fiber, and a slightly lower glycemic index (important to diabetics), than pasta based on refined flour, so according to a dietitian it has a slight nutritional edge. [Details](#).
- [How To Store Walnuts](#) - [here](#). Very nutritious - great antioxidants/fiber/minerals, but more delicate than they seem.
- [Sardines](#) - are nutritious, cheap, store well, are rich with protein and antioxidants ... and are suddenly a Gen Z obsession - [details](#) and the obligatory TikTok [videos](#) (of course). [turn on sound, scroll down for *more* performance art] Tune up: choose wild caught Portuguese sardines.

- 6 Foods With More Fiber Than Beans - [here](#). Summary: artichokes, raspberries, pumpkin, chia seeds, ground flax seeds, avocado. [Other foods](#) can also have good fiber and be nutritious, of course.
- 5 Widely Available Cereals To Reduce Stroke Risk - [here](#). [Ezekiel](#) cereals, and various brands of no-sugar muesli, such as [Michele's](#), are also good.
- Apples Are Healthy - See the details, and a nutritional rundown from a registered dietitian, [here](#). Try the new [Opal](#).
- Blueberries Or Blackberries For Antioxidants? - Blueberries have more of a particularly potent class of antioxidants (anthocyanins) that limit damage from [free radicals](#), [oxidative stress](#) and inflammation (joint issues). Anthocyanins also support your immune system and promote blood flow. *Wild, frozen* blueberries are best. Blackberries have much more [Vitamin C](#) and ellagic acid (helps fight tumors, including cancer). Both are healthy. [Details](#). [Greg K.]
- Keeping Fresh Raspberries Mold-Free - [here](#).
- Romaine Lettuce - is low in calories, and is an [excellent source of vitamins A, K folate and fiber](#). Compared to spinach, romaine has 50% more A, one third as much K, one quarter as much C, about the same amount of folate, and more fiber.
- Spinach - Nutritional run-down [here](#).
- Swiss Chard - is broadly nutritious. See a nutrition run-down [here](#). Note: Those taking a blood thinner should know that the ample Vitamin K in chard may reduce the medication's effectiveness as an anti clotting agent.

Environmental Science News -

- Geothermal Energy Powers AI Data Centers - [Ormat Technologies](#) (Reno NV) has [signed](#) a 20 year power purchase agreement (PPA) with AI data center builder [Switch](#) (Las Vegas NV). Ormat's 'Salt Wells' geothermal power plant near Fallon NV will provide 13 MW to Switch's Nevada data facilities, with an option to add a 7 MW solar farm.
- Batteries Batteries Batteries - The [American Battery Technology Company](#) (Reno NV, ABTC) does it all ... mines and refines battery materials from raw ore (Tonopah Flats Lithium Project), designs/tests/manufactures batteries, recycles spent batteries to recover/reuse scarce materials. View a podcast featuring the CEO, [here](#). ABTC's Nevada prototype recycling facility has been reviewed and approved by the US Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation, and Liability Act ([CERCLA](#)) to recycle damaged Lithium Ion batteries otherwise classified as hazardous waste. [EPA has since contracted with ABTC to recycle up to 100,000 damaged battery modules](#) from a grid-scale energy storage system fire in Northern California, and the company is now accelerating the design of a second CERCLA-certified recycling facility. The new plant, to be located in the Southeastern US, will have 5 times the capacity of the Nevada plant. Big job, big plans. [ULRI]
- On-Shore Wave Energy In Portugal - [Eco Wave Power Global](#) (Sweden) has [announced](#) completion of a detailed wave and structural load assessment for its planned installation at the Barra do Douro breakwater in Porto Portugal. The 1 MW project will be the world's largest wave energy generator. [Details](#) and a video.
- Urban EV Charge Stations In Israel - A pilot program to provide EV charge stations for urban residents without private parking will use modified street lights, making cost-

effective use of existing infrastructure. Smart. [Details](#). See also this [video](#) on *contactless* charging. [skip ad]

- [See What Shows Up To Investigate A Baited Underwater Camera On A Seamount In The Azores](#) - Video 1... a pod of curious dolphins. Video 2 ... an enormous Blue Shark. [Here](#).
- [Zealandia](#) - is the 556-acre ecosanctuary in Wellington, New Zealand that has recreated the ancient natural history of the island from before humans brought in invasive species. They used a high tech fence, specially trained dogs, and the careful rehoming of some of the last remaining endangered native species of birds and animals ... It also makes a *spectacular* tourist attraction near downtown Wellington. [Details](#). [Sarah F.]
- [The Archerfish Can Learn To Recognize Individual Human Faces](#) - a feat that biologists thought was limited to animals with large complex brains, and certain birds. Archerfish have the ability to spit water up to 3 feet above the surface, to knock down insects for food. Researchers at the University of Oxford and the University of Queensland showed their archerfish a series of human faces on a computer screen, and rewarded him with food for spitting at only a particular face - got it right a high percentage of the time. Details, [here](#). Publication [here](#).
- [Stealthy Finger Of Death](#) - The Antarctic winter can get as cold as 75°F below zero, while the very diverse life on the sea floor below, protected by the ice sheet, flourishes at a steady +28.4°F. But ... occasionally the very cold, super-saline brine, concentrated by freezing-out from the seawater above, will leak down through a crack, and then inside a hollow, self-constructed pillar of ice ([brinicle](#)) to instantly freeze any life it touches. Details, and a video of this deadly event, [here](#) [white arrow in red box]
- [Best Water For Houseplants?](#) - Not tap water with Fluorine, Chlorine or Chloramine, but if it's allowed to sit for 24 hours to outgas, it's OK. Distilled water, rainwater or aquarium water is better. [Details](#).
- [Bald Eagle Nest](#) - *Live* cam view of the nest in Big Bear Valley California, [here](#). Jackie and Shadow come and go. [choose view, turn on sound, EST minus 3 hours]. [Background](#). [turn on sound]. Spectacular view!

Other Science News -

- [Shift From Space Tourism To Moon Settlement](#) - Space technology company [Blue Origin](#) has [announced](#) a shift away from its New Shephard (suborbital tourism) program to its [lunar settlement and New Glen](#) rocket programs.
- [iPhones In Space](#) - NASA will now allow astronauts to take their smart phones with them. Who knew they couldn't?
- [Commercial US Deep Space Program?](#) - As part of the upcoming NASA 'Reauthorization' Act, and when the planned Artemis missions are complete, Congress is considering allowing NASA to offer ongoing deep space missions for competitive bidding. A more cost-effective deep space program is timely and welcome. To the Moon and beyond!
- [Life On Jupiter's Moon Europa?](#) - Beneath Europa's 9 to 16 mile thick frozen crust, there's more water than in all of Earth's oceans combined, so there was hope. New AI-assisted computer models, however, show a lack of the chemical and thermal energy gradients that life needs to run metabolic processes, [details](#). A recently [published](#) study concluded that life is unlikely, but the [Europa Clipper](#), launched by NASA in 2024 and

due to arrive at Europa orbit in 2030, will provide much more information when it begins fly-bys in the Spring of 2031. Stay tuned. [Wade S.]

- [Progressing From Simple Automation To AI-Guided Autonomy In Bio-Science Benchtop Research](#) - Put away those manual micropipettes, turn out the lights in the lab, and go do more creative things while the autonomous lab modules not only work 24/7 to execute the planned experimental protocol, their AI agent also evaluates the results in real time and redesigns the protocol to run an optimized iteration ... and another ... and another. The lab modules are made by [Ginko Bioworks](#) (Boston MA, excellent video, use closed captions), and are guided by an AI *agent* from the company's AI cloud. See a cell-free, protein synthesis example in which the autonomous modules processed 580 384-well plates, tested 36,000 reaction compositions, and generated 150,000 experimental data points, [here](#). The target protein can now be produced by the optimized method at 40% less cost. Faster, better, cheaper!

Nice Thing - [full screen, skip ads]

- [Music For A While](#) - Henry Purcell (1659-1695), A baroque period piece performed on the [Theorbo](#) by Brandon Acker, and sung by countertenor (rare voice type) Reginald Mobley, note the use of voice as an instrument, [here](#).
- [Prelude In C Minor BWV999](#) - J.S. Bach, circa 1720, performed on the Theorbo by David Tayler, 2014, [here](#).

Useful Health And Nutrition Websites -

- Health Biomarker Websites -
 - [NIH BMI Calculator](#) - [NIH](#) National Heart, Lung and Blood Institute [calculator](#). Find your Body Mass Index (BMI).
 - [Basal Metabolic Rate \(BMR\)](#) - Your BMR is how many calories you burn just sitting in your chair, [calculator](#).
 - [Body Roundness Index \(BRI\)](#) - Estimate your *visceral* fat, [details](#) and [calculator](#). Harvard background, [here](#).
 - [Are Your Stools Healthy?](#) - Check the Bristol Stool Chart [here](#). You should be a Type 3 or 4. Not complicated. [Details](#).
- Nutrition Websites -
 - [Is Your Favorite Food Ultra-Processed?](#) - and good substitutes. Northeastern University [TrueFood Dashboard](#).
 - [Most Nutritious Vegetables and Fruits Rank-Ordered by CDC](#) - List [here](#). Chinese cabbage = bok choy.
 - [Misleading Words For Sugar](#) - High-fructose corn syrup, sucrose, barley malt, dextrose, maltose and rice syrup are all [forms of sugar](#). Erythritol and Xylitol have been [linked to heart disease and stroke by Cleveland Clinic researchers](#), and should be avoided as food additives. Chemical sugar substitutes to be avoided: acesulfame potassium, advantame, allulose, aspartame, brazzein, lactitol, maltitol, mannitol, neotame, rebaudioside A (reb-A), saccharin, sorbitol, thaumatin and trehalose.